UAS and SmallSat Weekly News

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18Dec21

Phractyl's Macrobat nearly-eVTOL: Is it a bird, a plane… or a gag? Bruce Crumley - Dec. 17th 2021

A friendly warning to *DroneDJ* readers: It isn't clear whether the proposal by an African startup to build a passenger-transporting aircraft that looks and flies like a bird is stunning in its vision and ambition, or an elaborate gag to see how many people will be fished into believing the venture is actually on the level. Either way, the Phractyl Macrobat electric near vertical takeoff and landing vehicle (eNVTOL – no kidding) is worth checking out.

The plane stands on legs with tractor-like feet that allow it to roll at takeoff and landing. During those phases, the body, wing, and tail of the plane shift from their at-rest horizontal position backward toward the sky, allowing the two propellers to lift it off or lower it to the ground. Since the angle of that is limited to avoid planting the tail into the runway, the craft "nearly" vertically lifts off by rolling a bit to obtain velocity.

Despite the abundance of poetic information on the site, it isn't entirely clear what the deal is behind Phractyl – which stands for PHRontier for Agile Complex Technology sYstem evolution (a detail that naturally increases the reader's suspicion the entire project is a gag).

Were one to take the information the site provides at face value, it's fair to describe the startup as an uniquely African undertaking by African engineering wonks seeking to create future aircraft that respond to particularly African opportunities and limitations.

Phractyl plans on continuing development of the eNTVOL craft primarily for personal transport yet will make it adaptable recreational flight, medical deliveries, first responder service, cargo missions, infrastructure inspections, and possibly spraying crops. It says it could also augment passenger capacity for air taxi operation – or may do, that is, unless the entire thing is a hoax. https://dronedj.com/2021/12/17/phractyls-macrobat-nearly-evtol-is-it-a-bird-a-plane-or-a-gag/#more-73656

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Swoop Aero to launch medical drone logistics in Namibia Bruce Crumley - Dec. 17th 2021 DRONES FOR GOOD MEDICAL LOGISTICS

Melbourne-based Swoop Aero on Friday announced its decision to begin drone logistics services in Namibia. The focus will be on the distribution of medical and healthcare goods across the southwestern African nation and is slated to start in 2022.

Earlier this month, the company conducted test flights of a new UAV delivery operation it will run in Sierra Leone with UAVaid. In March, the company won Australia's AAUS Humanitarian Achievement award for its work in Malawi, the Democratic Republic of Congo, and Mozambique in speeding up the transport of treatments and test results between hospitals and remote villages.

In Namibia, Aero Swoop will seek to improve healthcare access for the 2.5 million residents. Much like Zipline, Swoop Aero's operating model in Africa involves hiring and training local staff to provide much of the effort and brain-power in improving access to healthcare through expanded, efficient medical drone logistics.

In Mawali, for example, the company has hired 12 full-time local staff and trained 70 health workers who oversaw the 5,000-plus flights carried out in the country. Six Democratic Republic of Congo nationals operate Swoop Aero aircraft in that country, in what the firm calls the largest two-way drone network in the world, serving 100 villages.
https://dronedj.com/2021/12/17/swoop-aero-to-launch-medical-drone-logistics-in-namibia/#more-73609

Drones could be enlisted to fight tornados and other climate disasters Steven Zeitchik Yesterday

A drone shot shows damage from a tornado that hit on Dec. 10, in Dawson Springs, Ky.

As storm chaser Brian Emfinger drove his hybrid SUV through northeastern Arkansas last Friday night in the aftermath of a vicious tornado, he spotted elderly people in wheelchairs outside a nursing home. So he did what he often does: he sent his DJI Mavic 3 drone into the air to investigate.

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The unmanned craft captured striking images that — after he posted them to social media a few minutes later — quickly went viral, helping bring home the scope and urgency of the damage far faster than anyone on the ground.

As the world faces the growing threat of climate disasters like the Quad-State tornadoes, which have claimed at least 88 lives and caused countless injuries and property damage, there's a corresponding interest in using drones to help out with them — whether it's to capture the devastation, map danger zones or even hunt for trapped victims.

Their approach is logical, even poetic — a human-made solution to redeem a human-created disaster. But that doesn't mean it will work. Two-pound spinning crafts aren't up to every task. And some forces on the ground, from regulators to first responders, aren't in a rush to send them skyward.
https://www.washingtonpost.com/technology/2021/12/17/innovations-how-drones-used-in-storm-response/

19Dec21

Vertical Aerospace Makes $300M Wall Street Takeoff Charles Alcock December 16, 2021

Vertical Aerospace's VX4 eVTOL aircraft will carry four passengers around 100 miles at speeds of 200 mph.

Shares in eVTOL aircraft developer Vertical Aerospace began trading today on the New York Stock Exchange after shareholders in special-purpose acquisition company (SPAC) Broadstone Acquisition Corp. yesterday approved a merger with the UK-based startup eVTOL manufacturer. Around $300 million is expected to be raised from the flotation and the issuance of convertible senior secured notes.

Vertical said that amount will more than cover the estimated $250 million it needs to complete EASA type certification of its four-passenger eVTOL by 2024 and start commercial operations in "the mid-2020s." Last week, Vertical Aerospace unveiled the prototype of the newly renamed VX4 aircraft, which is expected to start flight testing next year.

Vertical recently announced an additional $205 million funding round led by Mudrick Capital, along with new strategic partnerships to develop vertiports with London Heathrow Airport and infrastructure group Ferrovial.

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Provisional orders for the fixed wing eVTOL, which will have a range of over 100 miles and speeds of 200 mph, now total 1,350 units with a list price combined value of $5.4 billion (implying a $4 million price tag). Rolls-Royce is developing an electric propulsion system for the VX4, with the first units to be delivered in 2022. Other leading partners in the program include Honeywell Aerospace, which is providing flight controls and avionics.
https://www.ainonline.com/aviation-news/business-aviation/2021-12-16/vertical-aerospace-makes-300m-wall-street-takeoff

20Dec21

Axon Invests in Dedrone: Partership Between Public Safety and Counter Drone Technologies Miriam McNabb December 18, 2021

Axon Invests in Dedrone, leading a $30.5 Million Series C Round to Protect Airspace Against Unauthorized Drones

Leading counter drone solution company Dedrone announced a Series C financing round led by Axon, a leader in connected public safety technologies.

The counter drone space has had a banner year: Dedrone says they have sold more than 1,000 sensors and have expanded their capabilities to be able to cover more than 200 different drone types.

"Drone detection and tracking is highly complex, and we are seeing more and more instances of drones being used for nefarious purposes, including the first known drone-based terrorist attack on U.S. soil last year," said Aaditya Devarakonda, CEO of Dedrone. "This investment demonstrates validation of Dedrone's technology and team. Axon is a tremendous strategic partner for delivering airspace security to the public safety sector."
https://dronelife.com/2021/12/18/axon-invests-in-dedrone-partership-between-public-safety-and-counter-drone-technologies/

Drones for Residential Solar: a Safer, More Efficient Way to Measure Rooftops

Miriam McNabb December 17, 2021 By Jim Magill

Using drones for residential solar: DroneDeploy software allows Sunrun to conduct roof inspection without risk to workers

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Beginning in 2019, Sunrun, the leading home solar system installer in the U.S., began working with DroneDeploy to develop a drone-based solution to the challenges posed by having to send its technicians onto homeowners' rooftops to take measurements, a time-consuming and potentially dangerous job.

Sunrun teamed up with DroneDeploy to launch its drone program in the latter part of 2019 and started building its drone fleet with the purchase of 110 DJI Mavic 2 Pro drones in December of that year.

"It was guidance from DroneDeploy that landed us on that particular model because it integrated into their platform really well," Helm said. Using Drones for Residential Solar Surveys: From 2 Hours to 15 Minutes

The company now flies about 245 drones and employs the same number of site technicians who are certified as Part 107 drone pilots. In its peak month, Sunrun conducted 7,000 drone flights recording data on customer roofs from the ground using DroneDeploy's mapping software. The drone program has also reduced the number of issues involving the fitting of solar installations by 35%, Sunrun said. https://dronelife.com/2021/12/17/drones-for-residential-solar-sunrun-and-dronedeploy-find-a-safer-more-efficient-way-to-measure-rooftops/

Bristow, Overair Partner on Butterfly eVTOL Kate O'Connor December 17, 2021

Bristow Group has signed a memorandum of understanding with Overair to collaborate on the development of commercialization plans for Overair's Butterfly electric vertical take-off and landing aircraft design. According to the companies, they will work together on areas including vehicle design, performance parameters, FAA certification, configuration and maintenance protocols, infrastructure, ground support operations, government affairs and promotion of eVTOL operations. As part of the agreement, Bristow has preordered 20 Butterfly eVTOLs with an option for 30 additional aircraft.

Overair says the Butterfly will seat five passengers "with cargo." It is expected to have a range of up to 100 miles and top speed of 174 knots. The company is aiming to fly the design for the first time in 2023 with the goal of receiving its FAA type certification in 2025.

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https://www.avweb.com/recent-updates/evtols-urban-mobility/bristow-overair-partner-on-butterfly-evtol/?MailingID=796&utm_source=ActiveCampaign&utm_medium=email&utm_content=Flight+Training+Bill+Dead%2C+Ghost+172+Mystery+Solved%3F&utm_campaign=Flight+Training+Bill+Dead%2C+Ghost+172+Mystery+Solved%3F-Monday%2C+December+20%2C+2021

Dedrone secures $30 million Axon investment to support drone detection technology December 18, 2021 Jenny Beechener Counter-UAS systems and policies

Drone detection company Dedrone has secured $30 million Series C funding investment led by Axon Enterprise to develop solutions to track small drones flying in large 3D spaces.

Dedrone reports expansion of its geographic footprint to include over 1,000 sensors deployed and more than 100 active customers worldwide. Dedrone has implemented solutions in 33 countries — serving four G-7 nation governments, 20 airports, over 50 prisons, and 65 critical infrastructure sites. This global expansion has translated into increasing revenue growth year over year, and Dedrone now has offices in San Francisco, Washington DC, Columbus OH, London, and Germany.

Dedrone existing investors include Menlo Ventures, Felicis Ventures, Aqton Partners, Target Partners, TempoCap, and John Chambers, Chairman Emeritus of Cisco Systems and founder of JC2 Ventures. https://www.unmannedairspace.info/latest-news-and-information/dedrone-secures-usd30-million-axon-investment-to-support-drone-detection-technology-development/

FAA approves Virginia Tech test methods to demonstrate compliance for flights over people December 18, 2021 Jenny Beechener Emerging regulations

The US Federal Aviation Administration has accepted test methods developed at Virginia Tech to demonstrate compliance with new regulations for a capability that's crucial for the drone industry to expand: The ability to fly these aircraft over people. Virginia Tech is the first to achieve this acceptance.

The methods build on years of work by the test site, known as MAAP, and the group of injury biomechanics researchers led by Steve Rowson, an associate professor of biomedical engineering and mechanics at Virginia Tech. The partnership married MAAP's experience

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evaluating risk in drone operations, which has yielded copious data on how and why an impact might occur, and Rowson and his colleagues' techniques for recreating impacts in a laboratory setting and correlating impact characteristics to injury risk. Fusing their expertise enabled landmark achievements, including the first nationwide waiver for drone operations over people and the first drone air carrier certification.

The means of compliance expands the specialized testing needed for specific waivers into generalizable procedures that can be applied to a range of aircraft and a variety of operations. https://www.unmannedairspace.info/latest-news-and-information/faa-approves-virginia-tech-test-methods-to-demonstrate-compliance-for-flights-over-people/

High Altitude Platforms significantly reduce mobile network carbon emissions

December 20, 2021 Jenny Beechener Space traffic management

STL Partners has published new decarbonization research assessing the potential impact on mobile network energy use and emissions of using High Altitude Platforms (HAPs) to beam 5G to mobile users. STL's research projected the carbon emissions and sustainable energy of the hydrogen-powered Stratomast HAP, designed by UK based Stratospheric Platforms, compared to existing and planned 4G and 5G masts. The UK was used to model decarbonisation benefits, with plans for US and Japanese markets in 2022.

Over 0.45 million tons of CO2 could be saved every year using Stratospheric Platforms' flying 5G mast compared to ground-based installations – the equivalent of taking 225,000 fossil fuel cars off the road each year. A net saving of 4.5 million MWh of energy could be achieved in the UK by 2035 by terrestrial networks.

STL's research, calculates a potential reduction of between 10% and 30% of the cell-site energy in the UK. This is made up of: Savings from cell sites not built, an estimated 4,600 rural cell sites that would not need according to operators' coverage plans and savings from decommissioned cell sites. Between 4,100 and 8,300 cell sites could be decommissioned by 2035 as a result of new coverage from Stratomast. https://www.unmannedairspace.info/latest-news-and-information/high-altitude-platforms-haps-significantly-reduce-mobile-network-carbon-emissions-says-new-research/

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Drone market to grow by $8.5b with CAGR of 36.7% by 2025 December 14, 2021 Jenny Beechener UAS traffic management news

According to the Technavio report *Commercial Drones Market by Product, End-user, and Geography – Forecast and Analysis 2021-25.*

The post-pandemic market report has assessed the shift in consumer behavior and has identified and explored upcoming trends. The report says North America will register the highest growth rate of 42.83% among the other regions. Other key markets include the UK, China, Canada, France and Japan.

The analysis segments the commercial drones market by product (Software and services and Hardware), end user (Infrastructure, Agriculture, Public safety, Energy, and Others), and geographic (North America, Europe, APAC, South America, and MEA).

It identifies key vendors including 3D Robotics Inc., AeroVironment Inc., Autel Robotics, FLIR Systems Inc., Intel Corp., Parrot Drones SAS, Remote Monitored Systems plc, SZ DJI Technology Co. Ltd., Trimble Inc., and Yuneec International Co. Ltd.

The report advises commercial drone market vendors should focus on grabbing business opportunities from the software and services segment as it accounted for the largest market share in the base year. https://www.unmannedairspace.info/latest-news-and-information/drone-market-to-grow-by-usd28-5b-with-cagr-of-36-7-by-2025-new-technavio-report/

US Air Force awards Leidos $82 million for counter unmanned aerial systems

December 15, 2021 Jenny Beechener Counter-UAS systems and policies

The contract includes a one-year period and four one-year options. Work will be performed at various CONUS locations.

Leidos will support the Air Force Life Cycle Management Center and enhance the air base defender's capability to detect, identify, track and defeat small Unmanned Aircraft Systems. This will take place through a wide range of system and software maintenance, development, and deployment tasks. Leidos' innovation and agile technologies will play a critical role in enhancing base security capabilities while enabling a connected defense solution to combat anticipated threats to air bases worldwide. https://www.unmannedairspace.info/latest-news-and-information/us-air-force-awards-leidos-usd82-million-contract-to-provide-counter-unmanned-aerial-systems-capability/

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VIRGINIA TECH TEST SITE OVERCOMES MAJOR HURDLE IN DRONE FLIGHTS OVER PEOPLE December 18, 2021 Sally French 0 News,

Flying drones over people has been one of the biggest challenges in enabling widespread drone use — and drone delivery. But testing being done via the Virginia Tech Mid-Atlantic Aviation Partnership, which is an FAA-designated drone test site, could change that. And it all has to do with what happens to drones when they crash (spoiler: they break — and that's a good thing).

This month, the Virginia Tech test site announced that its in-house designed test methods have become the first to be accepted by the Federal Aviation Administration as a means of demonstrating compliance with new regulations around safely flying drones over people. That Means of Compliance was accepted on Dec. 10, 2021.

The premise of Virginia Tech's test methods? A demonstration of how much energy a particular drone is likely to transfer under realistic conditions of a potential crash and how that compares to a rigid object with a specified kinetic energy threshold. Because most drones break or crack themselves upon impact (and that's a good thing), makes more drones eligible for drone flights over people.

The Virginia Tech acceptance follows major news that happened late last year when the FAA released its long-awaited final rule on Operations over People. The FAA's Operations Over People and at Night rule, which was released at the end of 2020, allowed Part 107 remote pilots the ability to fly over people and moving vehicles, contingent upon "the level of risk" of the drone operation. "Risk" was defined by one of the four categories your drone fell under and had to do with both the type of operation and the drone in use.

Last year's new rules "swept away the bulk of the red tape that characterized the waiver system by establishing a clear, universal standard linked to the injury severity," according to Virginia Tech. "If a drone demonstrably wouldn't cause injury above a certain level, it could be flown over people." https://www.thedronegirl.com/2021/12/20/virginia-tech-test-site-compliance/

Falcon 9 sets reuse milestone with Starlink launch Jeff Foust — December 18, 2021

REYKJAVÍK, Iceland — A SpaceX Falcon 9 launched a new set of Starlink satellites Dec. 18, setting a new reusability mark for the vehicle in the process.

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The Falcon 9 lifted off from Space Launch Complex 4E at Vandenberg Space Force Base in California at 7:41 a.m. Eastern. The rocket's upper stage deployed a payload of 52 satellites into a mid-inclination orbit nearly 16 minutes later.

The rocket's first stage landed on the droneship "Of Course I Still Love You" about eight and a half minutes after liftoff. The booster completed its eleventh flight, a record for SpaceX. The stage was first used for the Demo-1 commercial crew test flight in March 2019 and subsequently launched the Radarsat Constellation Mission, SMX-7 radio satellite and seven sets of Starlink satellites.

With this mission, SpaceX has launched nearly 1,950 Starlink satellites, of which about 1,800 are in orbit. Of SpaceX's 29 Falcon 9 launches this year — another record for the company — 17 had Starlink satellites as the primary payload. https://spacenews.com/falcon-9-sets-reuse-milestone-with-starlink-launch/

21Dec21

DELIVERY DRONES HEAD TO ICY HIMALAYAS December 15, 2021 Sally French

Airial Robotics' CT30 Cargotrak recently completed a milestone mission by lifting 22 lbs of freight from a takeoff height of 14,025 feet and ascending to a height of 14,763 feet. Beyond grappling with flying in such high altitude, the drone flight entailed extreme weather conditions including icy temperatures of 14°F and stormy winds of 22 miles/hour, which are typically found among the rough mountainous region.

The mission was dubbed "Himalaya Express." And while this mission was just a one-off test, it demonstrates that Airial Robotics delivery drones are capable of flying in among the most brutal possible conditions and shows that cargo drones have a future in conducting operations that could be perceived as dangerous for manned aircraft.

The CT30 Cargotrak is designed for heavy lifting and has a massive, 2.65m diameter rotor which allows it to remain stable in heavy winds and high elevations of up to 5,000 meters (which is 16,404 feet — well over the roughly 14,800 the drone flew on the test in the Himalayas).

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The drone was designed for beyond visual line of sight flights and is able to carry cargo and sensors. Its design is a bit unusual, with patent pending technology that entails two main motors powering one large rotor and two traction motors. The company says that provides torque compensation, ensuring higher lifting capacity. https://www.thedronegirl.com/2021/12/21/himalayas/

Dec 20, 2021

FlyingBasket FB3 heavy-lift drone nails first urban transport flight in Turin

Shubham Ghosh Roy

Italian company FlyingBasket has reached an important milestone for the future of urban air mobility, performing the first urban area flight operation in the Italian city of Torino (Turin). The flight was part of a logistic demonstration in collaboration with Leonardo, an Italian global high-technology company, among the top world players in Aerospace, Defense, Security, and Poste Italiane, the Italian postal service provider.

FlyingBasket's FB3 eVTOL cargo drone with 100 kg payload capability has been in commercial operation for a year now since it received the first operational authorization to perform complex logistic missions in sparsely populated areas. During the demonstration, two FB3 heavy lift drones transported delivery packages over the Stura di Lanzo river. One drone with a cargo compartment and another with a sling payload carried 26 Kg each over a 3.9 Km distance to the destination (total flight 7 Km).

The sling payload with a cargo hook makes convenient delivery possible without the need for landing infrastructure. The demonstration set out a compelling instance for beyond pilots' visual line of sight, or BVLOS flights in the advanced air mobility context. The objective of the operation was to demonstrate the fast, efficient, and safe use of heavy-lift UAVs for freight hauling – in this instance, above a major urban center for the first time ever in Italy. https://lifeboat.com/blog/2021/12/flyingbasket-fb3-heavy-lift-drone-nails-first-urban-transport-flight-in-turin

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Archer Aviation Completes First Hover Flight with Maker eVTOL Jessica Reed | December 20, 2021

Archer Aviation just announced completion of the first successful hover flight of its Maker aircraft which took place last week on Dec. 16. Archer is one of only a few companies making electric vertical take-off and landing (eVTOL) aircraft to receive the Special Airworthiness Certificate from the FAA. The Maker demonstrator aircraft was revealed in June 2021, just six months before the hover flight took place, and is expected to have a 60-mile range at 150 miles per hour.

During the hover flight, the demonstrator aircraft climbed into the air and hovered in place, then returned safely to land on the ground. This achievement, according to the company's press release, "marks the completion of the company's first full and complete systems test and validation of every hardware and software component working as intended." The flight is also significant because last week was also the anniversary of the Wright Brothers' first flight at Kitty Hawk, NC, which took place in 1903.

In November, the two co-CEOs of Archer, Brett Adcock and Adam Goldstein, stated the first generation of their production aircraft will make its debut in 2023. However, in this week's announcement, the company revealed plans to unveil the production-ready version of its aircraft in late 2022. https://www.aviationtoday.com/2021/12/20/archer-aviation-completes-first-hover-flight-with-maker-evtol/

Airspace Security: SkySafe Raises $30 Million to Scale Growth Miriam McNabb December 20, 2021

San Diego-based SkySafe has announced a $30 million Series B investment to accelerate growth. The Series B investment led by Kingfisher Investment Advisors "with participation from new investors Gaingels, and MIT alumni investment fund Castor Ventures. Previous investor Andreessen Horowitz, who led the seed and Series A investments, also joined the round," says a company press release. To date, SkySafe has raised $45 million in total financing.

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Counter drone technology is based on a basic premise: detect, identify, and mitigate. Over time, systems have gotten more sophisticated: but as legitimate commercial drone traffic increases, so does the need to differentiate between authorized and unauthorized drones.

SkySafe's airspace security technology "is designed to applies advanced radio technology, reverse engineering, and deep threat analysis to provide the infrastructure needed for the commercial drone industry," explains the release. The modular hardware can be easily transported and tailored for specific airspace. https://dronelife.com/2021/12/20/airspace-security-skysafe-raises-30-million-to-scale-growth/

22Dec21

MQ-25 Completes First Carrier Tests Kate O'Connor December 21, 2021

Boeing's MQ-25 Stingray unmanned aerial refueler has successfully completed its first sea tests with the U.S Navy aboard the USS George H.W. Bush aircraft carrier. The tests were also the first conducted on a carrier for the MQ-25 and covered deck handling maneuvers including taxiing on the deck, connecting to the catapult, clearing the landing area, and parking on the deck.

The goal of the deck handling demonstration was to verify that the design could be integrated into the carrier environment along with evaluating the "functionality, capability and handling qualities of the deck handling system both in day and night conditions." As previously reported by *AVweb*, the MQ-25 became the first unmanned aircraft system to successfully refuel another aircraft in flight last June as part of a two-year flight test campaign. To date, it has been used to refuel an F/A-18 Super Hornet, an E-2D Hawkeye and an F-35C Lightning II.
https://www.avweb.com/aviation-news/military-aviation/mq-25-completes-first-carrier-tests/?MailingID=798&utm_source=ActiveCampaign&utm_medium=email&utm_content=Dynon+Autopilots+for+Bonanzas%2C+Unlikely+Mid-Air+Claims+Two&utm_campaign=Dynon+Autopilots+for+Bonanzas%2C+Unlikely+Mid-Air+Claims+Two%2CWednesday%2C+December+22%2C+2021

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SkyPixel's 7th Anniversary Aerial Photo and Video Contest Miriam McNabb December 21, 2021

SkyPixel and DJI Call for Entries for one of the biggest aerial photo and drone video contests around. Compete for prizes that total more than $97,000 - and the glory. Find contest rules on SkyPixel here.

This year's aerial photo and drone video contest will run from December 21, 2021 to February 21, 2022.

The drone video contest consists of 6 categories: **Nature, City**, **Travel**, **FPV, Sport, Showreel**

The aerial photo contest consists of 4 categories: **Portrait, Nature, Architecture, Sport**

There is no restriction on the type or brand of drones used and participants can submit as many photos or videos as they wish. Submissions will be assessed by the Judging Panel of incredible professionals in the industry. https://dronelife.com/2021/12/21/skypixel-dji-drone-video-contest/

DroneUp Acquires AirMap's Unmanned Traffic Management Service Jessica Reed | December 21, 2021

Aviation technology provider DroneUp recently announced its acquisition of AirMap, Inc., the digital airspace and automation company. AirMap offers an Unmanned Aircraft System Traffic Management (UTM) service which will benefit DroneUp's network of pilots and growing ground infrastructure. The company's UTM service provides flight data for up to 100,000 international flights each day.

As one of three UTM providers deployed internationally, AirMap provides UTM in Switzerland in addition to serving customers throughout North America, Europe, Southeast Asia, and Australia. DroneUp has achieved government authorization as a drone services provider for 13 states in which it serves public sector organizations. The company also has over 190 active waivers and authorizations with the FAA. https://www.aviationtoday.com/2021/12/21/droneup-acquires-airmaps-utm-service/

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Airlines Back Embraer eVTOL Subsidiary's Plans to Go Public Charles Alcock December 21, 2021

Eve Urban Air Mobility today became the latest eVTOL aircraft developer to announce plans to go public via a merger with a special purpose acquisition company. The subsidiary of Brazilian aerospace group Embraer said it has reached agreement to combine its business with Zanite Acquisition Corp. and seek a New York Stock Exchange listing under the name Eve Holding. Talks between Embraer and Zanite were first confirmed on June 11.

Among the backers for the proposed merger/flotation are scheduled airlines SkyWest and Republic Airways, which along with leasing group Azorra Aviation on Tuesday confirmed provisional orders for up to 500 of the Eve eVTOL vehicle, respectively committing to 100, 200, and 200 units each. The four-passenger, electric lift-and-cruise aircraft is expected to enter commercial service in 2026.

In their December 21 announcement, the companies said Embraer will remain the majority shareholder in Eve, with an 82 percent stake. https://www.ainonline.com/aviation-news/air-transport/2021-12-21/airlines-back-embraer-evtol-subsidiarys-plans-go-public

Students develop lifesaving defibrillator drone for cardiac arrest victims Ishveena Singh - Dec. 22nd 2021

In Germany, about 75,000 people experience sudden cardiac arrest every year – and only 11% survive. This survival rate is linked directly to an ambulance's response time and early defibrillation. But with ambulances taking nine to 15 minutes on average to reach a rural area, and more remote areas being completely inaccessible by road, a team of students decided to come up with a means of faster intervention. Enter, a remote-controlled rescue drone with a defibrillator on board.

Students at the Technical University of Munich have built a fixed-wing drone that can achieve flight speeds of over 74 mph to reach even those areas in four to five minutes that are difficult or even impossible to access through the local road infrastructure.

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Measuring nearly 2 meters long with a wingspan of 3 meters, the aircraft goes into hover mode when it reaches the emergency coordinates and lowers the defibrillator with a winch to the ground. In the meantime, a smartphone-based alerting system works in the background to notify a person(s) with medical background nearest to the emergency scene. The defibrillator is then rapidly deployed by the rescue chain.

With the help of the Bavarian Red Cross and a simulated emergency, the team was able to demonstrate the technical capabilities of the prototype drone with a test flight in Ottobrunn last week. https://dronedj.com/2021/12/22/lifesaving-defibrillator-drone-cardiac-arrest/#more-73795

Oz partners fly drones to regenerate habitat of declining koala populations Bruce Crumley - Dec. 22nd 2021

Led by World Wildlife Foundation Australia, a team of concerned organizations is mounting a drone-powered effort to create a "koala corridor" of trees and foliage to restore the marsupial's habitat wiped out by recent fires and reverse its population decline. The objective is to regenerated trees and other flora that koalas rely on for both food and shelter.

Joining the World Wildlife Foundation Australia (WWF) and Dendra is the Turner Family Foundation and Australian government, which is providing $12.9 million in funding above contributions by other partners. The initial phase of the project will focus on 11,268 acres of private land west of Brisbane, and will broaden out as part of the WWF's Regenerate Australia program to restore some of the 47 million acres of growth burned in the country's devastating 2019-2020 wildfires.

The focus is primarily on Dendra drones, which have been flying continual missions to spread a seed mix of 40 different plant and tree species – including the marsupial's favorite blue gum eucalyptus. Each drone can carry around 750 kilograms in a day, and these drones can fly in swarms to plant up to (1.6 tons) of seeds every day.

Dendra drones are already scheduled to fly missions to restore koala habitat across nearly 50,000 acres over the next four years. That will be critical to returning life to wildfire burn zones and help species of the estimated 3 billion animals adversely affected by the flames rebound.

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And that process has already begun, from the skies, in the WFF's flight area west of Brisbane. https://dronedj.com/2021/12/22/oz-partners-fly-drones-to-regenerate-habitat-of-declining-koala-populations/#more-73808

Why Was 2021 the Rise of the American-Made Drone? DECEMBER 21, 2021 Danielle Gagne

One of the more exciting trends we've seen was witnessing American-made solutions become major players in the drone space. Skydio, named Company of the Year by Frost & Sullivan, was given numerous awards like the CES Innovation Award for its X2 drone, and AUVSI's Innovators Award for their 3D Scan software product. They were named one of the 10 most innovative companies in robotics by Fast Company and were given a $1 Billion Dollar valuation. They were also tapped to supply short-range reconnaissance drones to the US Army, witnessed the approval of their technology, their dock-based Skydio drones, to operate autonomously along a large portion of the BNSF Railway, and launched their 3D Scan and Skydio Cloud software products–the first of many steps toward becoming a full-stack solution. By any metric, Skydio has seen phenomenal growth and success in 2021.

"Skydio is the fastest growing small UAS manufacturer in the world and is almost single-handedly re-establishing an industrial base for commercial drones in the United States," Mike Blades, Former VP of Aerospace, Defense, and Security in the Americas at Frost & Sullivan stated, "Frost & Sullivan has identified autonomy and AI as the two main technologies that will drive commercial drone adoption in the future, and Skydio is at the forefront of both." https://www.commercialuavnews.com/construction/why-was-2021-the-rise-of-the-american-made-drone?utm_source=marketo&utm_medium=email&utm_campaign=newsletter&utm_content=newsletter&mkt_tok=NzU2LUZXSi0wNjEAAAGBgn3NhUNTs3dDnUujvisUn83wMhP3GtMVqHF93tNXjuufK4VEva4es9DR29f7sv8rkhvaaTV7mLcWCGGeZrA79hPQpjTy_mdIA-xPLO-Hj0dkKA

23Dec21

The Science of Drone Racing: DRL and Draganfly Create New STEM Program

Miriam McNabb December 22, 2021 DRONELIFE Staff Writer Ian M. Crosby

The world's leading drone racing property, the Drone Racing League (DRL), announced today an expansion of their DRL Academy STEM program in partnership with industry leader Draganfly, the leader in demand-driven K-12 education Woz Ed, and Robotify, a virtual platform teaching

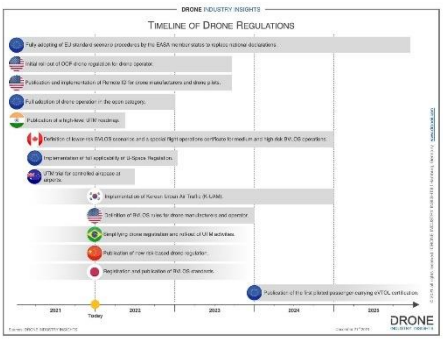
students about coding using robots. Together, these technology and education leaders will teach the next generation of innovators the interactive "Science of Drone Racing" curriculum, beginning for middle school students next year.

With a projected 100,000 new drone jobs to arrive in the U.S. by 2025, it is essential for companies to invest in the next generation of talent. The Science of Drone Racing program will engage students through hands-on and virtual learning experiences that exhibit career-pathing opportunities within the drone industry.

In the Science of Drone Racing course, students will learn to fly and build racing drones using physical kits and code drones in esports-style programming competitions as well as watch professional pilots compete during exclusive DRL Season viewing parties.
https://dronelife.com/2021/12/22/the-science-of-drone-racing-drl-and-draganfly-create-new-stem-program/

Drone Regulation 2022: Drone Industry Insights on What Comes Next Miriam McNabb December 22, 2021

What's next for drone regulation in 2022? A new report from Drone Industry Insights says the commercial industry can expect progress globally.



DRONEII Editor Ed Alvarado writes that around the world, drone regulations – and the regulatory framework – are evolving rapidly. "This is a very welcome development given that the drone industry sees this as the most important driving factor.

The movement on drone regulation in 2022 is global. In Korea, significant movement towards urban air mobility is underway, continuing the progress made this year with trial flights and the government commitment to an early implementation of passenger VTOL aircraft. In the United States, the FAA is on the cusp of defining rules for flight Beyond Visual Line of Sight. In Brazil, the government is simplifying drone registration. In China, officials are publishing a new, risk-based regulation framework. Japan will finalize registration and BVLOS flight standards.

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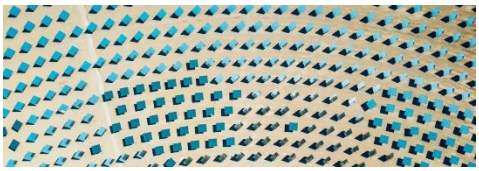
These developments signal progress towards global drone integration and an expansion of commercial drone operations. Taken together, these global developments signal that the drone industry is getting closer to reaching its potential and scale.
https://dronelife.com/2021/12/22/drone-regulation-2022-drone-industry-insights-on-what-comes-next/

INDIA'S AIRPROBE ACQUIRED UNDER DRONEBASE'S SOLAR EXPANSION December 18, 2021 Sally French News



DroneBase has been on a tear of acquisitions and expansions in the wake of a $20 million funding round in October 2021. And the Santa Monica, Calif.-based company just revealed what some of the money is being spent on: the acquisition of India-based drone company AirProbe.

AirProbe uses drones to inspect solar energy systems, while also using AI-enabled analytics to digest solar inspection data. AirProbe is particularly notable for its proprietary Artificial Intelligence programs, which it claims can significantly reduce the amount of time needed to analyze aerial inspection data of solar energy systems by up to 50%.

"This enables solar owners, operators and financiers to more quickly take action to fix high value anomalies and defects to increase energy generation and improve system ROI," according to a prepared statement from DroneBase.

DroneBase clearly has its sights set on being a world leader in intelligent aerial imaging, with a focus on working with renewable energy companies worldwide. And with the AirProbe acquisition, DroneBase landed itself an instant footprint in both Asia Pacific (APAC) and Europe. Both India and APAC are growing markets for the renewable energy industry.
https://www.thedronegirl.com/2021/12/23/india-airprobe-dronebase/

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